SAF-RC-233
100-IU-2 & 100-IU-6 Remaining Waste Sites – Soil In-Process
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 10/13/14
INITIAL/DATE

COMMENTS:

SDG XP0136 SAF-RC-233

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Sample Location: 100-B-35:1, electrical switchyard
IP, EXC

GEL Laboratories LLC

a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407

P 843.556.8171 F 843.766.1178

www.gel.com

October 01, 2014

Joan Kessner
WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354

Re: RC-233 Soil
Work Order: 357420
SDG: XP0136

Dear Joan Kessner:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on September 25, 2014. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1616.

Sincerely,

Orlette Johnson
Project Manager

Purchase Order: 1510
Chain of Custody: RC-233-063, RC-233-064 and RC-233-065
Enclosures

Table of Contents

Case Narrative

Receipt Narrative
for
WC-HANFORD, INC.
SDG: XP0136
Work Order: 357420

October 01, 2014

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on September 25, 2014 for analysis.

Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
357420001	J1V0H5
357420002	J1V0H6
357420003	J1V0H7
357420004	J1V0H8
357420005	J1V0H9
357420006	J1V0J0
357420007	J1V0J1
357420008	J1V0J2
357420009	J1V0J3
357420010	J1V0J4
357420011	J1V0J5
357420012	J1V0J6

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Diesel Range Organics and GC Semivolatile PCB.

Orlette Johnson
Project Manager

Chain of Custody and Supporting Documentation

J8T2U

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-233-063

Page 1 of 1

Collector: A. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-IU-2 & 100-IU-6 Remaining Waste Sites	Sampling Location: 100-B-35:1, 151-B, Electrical switchyard, IP EXC		SAF No.: RC-233
Ice Chest No.: WCH-11-061	Field Logbook No.: EL-1667-02	COA: 010B352600	Method of Shipment: Commerical Carrier / Fed Ex
Shipped To: GEL Laboratories Charlston	Offsite Property No.: A131231		Bill of Lading/Air Bill No.: See OSR

Price Code: 3 days 8A

Data Turnaround

Other Labs Shipped To: N/A

POSSIBLE SAMPLE HAZARDS/REMARKS: N/A

Special Handling and/or Storage: Cool 4C

Preservation	Cool 4C	Cool 4C									
Type of Container	aG	aG									
No. of Container(s)	1	1									
Volume	125mL	125mL									
Sample Analysis	PCBs - 8082	TPH-Diesel Range - WTPH-D +									

Sample No.	Matrix	Sample Date	Sample Time								
J1V0H5	SOIL	09/22/14	1216	X	X						
J1V0H6	SOIL	09/22/14	1221	X	X						
J1V0H7	SOIL	09/22/14	1226	X	X						
J1V0H8	SOIL	09/22/14	1231	X	X						
J1V0H9	SOIL	09/22/14	1237	X	X						

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [illegible]	09/22/14 1336	[illegible]	9/22/14 1336
[illegible]	9/22/14 1540	SM Sexton	9/22/14 1540
SM Sexton	9/22/14 1545	1060 Battelle Fridge 1A	9/22/14 1545
1060 Battelle Fridge 1A	9/23/14 0751	SM Sexton	9/23/14 0751
SM Sexton	9/23/14 0755	FED EX	
FED X		P. Meert Patterson	Dent 9/25/14 0900

FINAL SAMPLE DISPOSITION: Disposal Method | Disposed By | Date/Time

SPECIAL INSTRUCTIONS

REVIEWED BY K. Wood VERIFIED DATE 9/23/14

XP0136

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-233-064

Collector H. Weber	**Company Contact** Joan Kessner	**Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH
Price Code 3 days 8A	**Data Turnaround**		
Project Designation 100-IU-2 & 100-IU-6 Remaining Waste Sites	**Sampling Location** 100-B-35:1, 151-B, Electrical switchyard, IP EXC		**SAF No.** RC-233
Ice Chest No. WCH-11-061	**Field Logbook No.** EL-1667-02	**COA** 010B352600	**Method of Shipment** Commerical Carrier Fed Ex
Shipped To GEL Laboratories Charlston	**Offsite Property No.** A131231		**Bill of Lading/Air Bill No.** See DSR

Other Labs Shipped To

N/A

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	Cool 4C									
Type of Container	aG	aG									
No. of Container(s)	1	1									
Volume	125mL	125mL									
Sample Analysis	PCBs - 8082	TPH-Diesel Range - WTPH-D +									

Sample No.	Matrix	Sample Date	Sample Time								
J1V0J0	SOIL	09/22/14	1246	X	X						
J1V0J1	SOIL	09/22/14	1304	X	X						
J1V0J2	SOIL	09/22/14	1309	X	X						
J1V0J3	SOIL	09/22/14	1316	X	X						
J1V0J4	SOIL	09/22/14	1322	X	X						

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber/	09/22/14 1336	DWSHEN DWSHFA	9/22/14 1336
DWSHEN DWSHFA	9/22/14 1540	SM SEXTON	9/22/14 1540
SM SEXTON	9/22/14 1545	10160 Battelle Fridge 1A	9/22/14 1545
10160 Battelle Fridge 1A	9/23/14 0751	SM SEXTON	9/23/14 0751
SM SEXTON WCH	9/23/14 0755	FED EX	
FED X		P. Dent Patricia Dent	9/25/14 0900

SPECIAL INSTRUCTIONS

REVIEWED BY K. Wood via email DATE 9/23/14

XP0136

FINAL SAMPLE DISPOSITION — Disposal Method — Disposed By — Date/Time

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-233-065

Collector: WEBER, HC	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-IU-2 & 100-IU-6 Remaining Waste Sites	Sampling Location: 100-B-35:1, electrical switchyard, IP, EXC		SAF No.: RC-233
Ice Chest No.: WCH-11-061	Field Logbook No.: EL-1667-02	COA: 0108352600 ~~010D352600~~ DWS 9/22/14	Method of Shipment: Commerical Carrier / Fed Ex
Shipped To: GEL Laboratories Charlston	Offsite Property No.: A131231		Bill of Lading/Air Bill No.: See OSPC

Price Code: 3 days 8A

Data Turnaround

Other Labs Shipped To: N/A

POSSIBLE SAMPLE HAZARDS/REMARKS: none

Special Handling and/or Storage: none

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Type of Container	No. of Container(s)	Volume	Sample Analysis
				Cool 4C	aG	1	125mL	PCBs - 8082
				Cool 4C	aG	1	125mL	TPH-Diesel Range - WTPH-D +
J1V0J5	SOIL	09/22/14	1327	X		X		
J1V0J6	SOIL	09/22/14	1240	X		X		

CHAIN OF POSSESSION / Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	09/22/14 1330	DWSHEA	9/22/14 1336
DWSHEA	9/22/14 1540	SM SEXTON	9/22/14 1540
SM SEXTON	9/22/14 1545	1060 Battelle Fridge 1A	9/22/14 1545
1060 Battelle Fridge 1A	9/22/14 SMS 9-23-14 23 0751	SM SEXTON	9/23/14 0751
SM SEXTON	9/23/14 WCH 0755	FED EX	
FED X		P. Dent Patricia Dent	9/25/14 0900

FINAL SAMPLE DISPOSITION: Disposal Method ____ Disposed By ____ Date/Time ____

SPECIAL INSTRUCTIONS

XP0136

REVIEWED BY K. Wood via e-mail DATE 9/23/14

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: WCHN	SDG/AR/COC/Work Order: 357420
Received By: P. Dent	Date Received: 9/25/14

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 cpm
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Melted Ice. Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius. 5c
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 130462966
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?		X		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		X		Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?	X			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			X	
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other. 7712 5388 6914

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HH Date 092514 Page 1 of 1

GL-CHL-SR-001

Laboratory Certifications

List of current GEL Certifications as of 01 October 2014

State	Certification
Alaska	UST−110
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC000122013−10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013−10
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA130005
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC000122013−10
Nebraska	NE−OS−26−13
Nevada	SC000122014−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina GVL	23611001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−14−9
Utah NELAP	SC000122014−14
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

FID Diesel Range Organics Analysis

Case Narrative

FID Diesel Range Organics
WC-HANFORD, INC. (WCHN)
SDG XP0136

Method/Analysis Information

Procedure:	**Analysis of Diesel Range Organics by Flame Ionization Detector**
Analytical Method:	NWTPH-Dx in Soil
Prep Method:	SW846 3541
Analytical Batch Number:	1422295
Prep Batch Number:	1422293

Sample Analysis

The following samples were analyzed using the analytical protocol as established in NWTPH-Dx in Soil:

Sample ID	Client ID
357420002	J1V0H6
357420003	J1V0H7
357420004	J1V0H8
357420005	J1V0H9
357420006	J1V0J0
357420008	J1V0J2
357420009	J1V0J3
357420010	J1V0J4
1203175347	MB for batch 1422293
1203175348	Laboratory Control Sample (LCS)
1203175351	357420002(J1V0H6) Matrix Spike (MS)
1203175352	357420002(J1V0H6) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-003 REV# 24.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria. Analyte peaks eluted within the established retention time windows for this method.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria; however, the MB contained low level (below the PQL) of hydrocarbons within Motor Oil range.

Surrogate Recoveries
QC sample 1203175351(J1V0H6)(MS) did not meet surrogate recovery acceptance criteria possibly due to sample matrix interference as the MS, MSD and the parent sample displayed similar surrogate recovery.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 357420002 (J1V0H6) was selected for the matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS recoveries for this SDG were not within the acceptance limits. The failures confirm in the matrix spike duplicate and are attributed to matrix interference.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries for this SDG were not within the acceptance limits. The failures confirm in the MS and are attributed to matrix interference.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the MS and MSD did not meet the acceptance limits due much lower spike recovery in the MS.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. Analyte peaks eluted within the established retention time windows for this method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions were not required for the samples reported in this batch.

Miscellaneous Information

Electronic Package Comment

This package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative.

Data Exception (DER) Documentation
Data exception report (DER) is generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. DER #1338650 was generated for this SDG in batch.

Manual Integrations
Manual integration was required for surrogates.

Additional Comments
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The additional comments were not required.

System Configuration

The Diesel Range Organics analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
FID7.I	Agilent Gas Chromatograph	Agilent 6890N GC/FID	DB-5MS	30m x 0.25mm, 0.25um(J&W)

Method/Analysis Information

Procedure:	**Analysis of Diesel Range Organics by Flame Ionization Detector**
Analytical Method:	NWTPH-Dx in Soil
Prep Method:	SW846 3541
Analytical Batch Number:	1422929
Prep Batch Number:	1422928

Sample Analysis

The following samples were analyzed using the analytical protocol as established in NWTPH-Dx in Soil:

Sample ID	Client ID
357420001	J1V0H5
357420007	J1V0J1
357420011	J1V0J5
357420012	J1V0J6

1203176804	MB for batch 1422928
1203176805	Laboratory Control Sample (LCS)
1203176806	357420007(J1V0J1) Matrix Spike (MS)
1203176807	357420007(J1V0J1) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-003 REV# 24.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standards (ICV or CCV) met the acceptance criteria for the target analytes. Analyte peaks eluted within the established retention time windows for this method.

Surrogate recovery did not meet the acceptance criteria in the standard bracketing the samples in this SDG; however, this has no adverse effects on the data as the surrogate recovery was well within the acceptance range in the associated WCHN samples.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 357420007 (J1V0J1) was selected for the matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS recovery was within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery was within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the MS and MSD met the acceptance limits.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. Analyte peaks eluted within the established retention time windows for this method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Samples 357420001 (J1V0H5), 357420007 (J1V0J1), 357420011 (J1V0J5) and 357420012 (J1V0J6) were extracted and analyzed twice due to low surrogate recovery in the first analysis. The second analysis was reported.

Miscellaneous Information

Electronic Package Comment

This package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative.

Data Exception (DER) Documentation
Data exception report (DER) is generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A DER was not required for this SDG in this batch.

Manual Integrations
Manual integration was required for surrogates.

Additional Comments
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The additional comments were not required.

System Configuration

The Diesel Range Organics analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
FID7.I	Agilent Gas Chromatograph	Agilent 6890N GC/FID	DB-5MS	30m x 0.25mm, 0.25um(J&W)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
30-SEP-14	Federal	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
GC/FID	NWTPH-Dx in Soil, SW846 3541/8015B	Solid	AREV, WCHN
Batch ID:	**Sample Numbers:**		
1422295	See Below		

Potentially affected work order(s)(SDG): 357392,357420(XP0136)

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Failed Yield for Surrogates

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	**DER Disposition:**
1. The MS(1203175351) recovered surrogate o-Terphenyl at 44%(SPC Limit: 50%-150%). 2. The MS(1203175351) and MSD(1203175352) recovered below the established acceptance limits. 3. The MS/MSD RPD value exceeds their established acceptance limits.	1. The MSD and the parents sample exhibited a similar (but passing) recovery, therefore the failure is attributed to sample matrix interference and the data were reported. 2. As the MS and MSD displayed similar recoveries, the failures were attributed to sample matrix interference and the data have been reported. 3. The failure was due to relatively lower spike recovery in the MS. The data were reported.

Originator's Name:

Benjamin Taft 30-SEP-14

Data Validator/Group Leader:

Jimin Cao 01-OCT-14

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

WCHN001 WC-HANFORD, INC.

Client SDG: XP0136 GEL Work Order: 357420 Project: RC-233 Soil

The Qualifiers in this report are defined as follows:

B The analyte was detected in both the associated QC blank and in the sample.

J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated

T Spike and/or spike duplicate sample recovery is outside control limits.

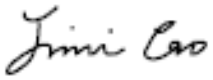
U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature:  **Name: Jimin Cao**

Date: 03 OCT 2014 **Title: Data Validator**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0H5
Sample ID: 357420001
Matrix: SOIL
Collect Date: 22-SEP-14 12:16
Receive Date: 25-SEP-14
Collector: Client
Moisture: 4.96%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	U	2280	2280	7000	ug/kg	1	BYT1	09/30/14	2320	1422929	1
Motor Oil (C20-C36)		8150	2280	7000	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/26/14	1005	1422293
SW846 3541	3541 DRO IN SOIL PREP	SJW1	09/30/14	1018	1422928

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	608 ug/kg	700	86.8	(50%-150%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0H6
Sample ID: 357420002
Matrix: SOIL
Collect Date: 22-SEP-14 12:21
Receive Date: 25-SEP-14
Collector: Client
Moisture: 2.47%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	TU	2210	2210	6810	ug/kg	1	BYT1	09/28/14	0915	1422295	1
Motor Oil (C20-C36)	BJT	3880	2210	6810	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/26/14	1005	1422293

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	345 ug/kg	681	50.7	(50%-150%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0H7
Sample ID: 357420003
Matrix: SOIL
Collect Date: 22-SEP-14 12:26
Receive Date: 25-SEP-14
Collector: Client
Moisture: .989%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	TU	2180	2180	6720	ug/kg	1	BYT1	09/28/14	1150	1422295	1
Motor Oil (C20-C36)	BJT	5880	2180	6720	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/26/14	1005	1422293

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	366 ug/kg	672	54.4	(50%-150%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0H8
Sample ID: 357420004
Matrix: SOIL
Collect Date: 22-SEP-14 12:31
Receive Date: 25-SEP-14
Collector: Client
Moisture: 1.04%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	TU	2180	2180	6720	ug/kg	1	BYT1	09/28/14	1229	1422295	1
Motor Oil (C20-C36)	BT	20100	2180	6720	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/26/14	1005	1422293

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	366 ug/kg	672	54.5	(50%-150%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0H9
Sample ID: 357420005
Matrix: SOIL
Collect Date: 22-SEP-14 12:37
Receive Date: 25-SEP-14
Collector: Client
Moisture: 1.12%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	TU	2190	2190	6720	ug/kg	1	BYT1	09/28/14	1308	1422295	1
Motor Oil (C20-C36)	BT	9770	2190	6720	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/26/14	1005	1422293

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	391 ug/kg	672	58.2	(50%-150%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0J0
Sample ID: 357420006
Matrix: SOIL
Collect Date: 22-SEP-14 12:46
Receive Date: 25-SEP-14
Collector: Client
Moisture: .947%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	TU	2180	2180	6720	ug/kg	1	BYT1	09/28/14	1545	1422295	1
Motor Oil (C20-C36)	BT	7750	2180	6720	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/26/14	1005	1422293

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	348 ug/kg	672	51.7	(50%-150%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0J1
Sample ID: 357420007
Matrix: SOIL
Collect Date: 22-SEP-14 13:04
Receive Date: 25-SEP-14
Collector: Client
Moisture: .797%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	U	2180	2180	6720	ug/kg	1	BYT1	09/30/14	2359	1422929	1
Motor Oil (C20-C36)		16200	2180	6720	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/26/14	1005	1422293
SW846 3541	3541 DRO IN SOIL PREP	SJW1	09/30/14	1018	1422928

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	551 ug/kg	672	82.0	(50%-150%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0J2
Sample ID: 357420008
Matrix: SOIL
Collect Date: 22-SEP-14 13:09
Receive Date: 25-SEP-14
Collector: Client
Moisture: .797%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	TU	2180	2180	6710	ug/kg	1	BYT1	09/28/14	1703	1422295	1
Motor Oil (C20-C36)	BT	20300	2180	6710	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/26/14	1005	1422293

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	364 ug/kg	671	54.2	(50%-150%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0J3
Sample ID: 357420009
Matrix: SOIL
Collect Date: 22-SEP-14 13:16
Receive Date: 25-SEP-14
Collector: Client
Moisture: .816%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	TU	2180	2180	6720	ug/kg	1	BYT1	09/28/14	1742	1422295	1
Motor Oil (C20-C36)	BT	10300	2180	6720	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/26/14	1005	1422293

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	417 ug/kg	672	62.1	(50%-150%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company :	WC-Hanford, Inc.
Address :	2620 Fermi Avenue MSIN H4-21 Richland, Washington 99354
Contact:	Joan Kessner
Project:	RC-233 Soil

Client SDG: XP0136

Client Sample ID:	J1V0J4	Project:	WCHN00313
Sample ID:	357420010	Client ID:	WCHN001
Matrix:	SOIL		
Collect Date:	22-SEP-14 13:22		
Receive Date:	25-SEP-14		
Collector:	Client		
Moisture:	.802%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	TU	2180	2180	6710	ug/kg	1	BYT1	09/28/14	1821	1422295	1
Motor Oil (C20-C36)	BT	9960	2180	6710	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/26/14	1005	1422293

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	363 ug/kg	671	54.0	(50%-150%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company :	WC-Hanford, Inc.
Address :	2620 Fermi Avenue MSIN H4-21 Richland, Washington 99354
Contact:	Joan Kessner
Project:	RC-233 Soil

Client SDG: XP0136

Client Sample ID:	J1V0J5	Project:	WCHN00313
Sample ID:	357420011	Client ID:	WCHN001
Matrix:	SOIL		
Collect Date:	22-SEP-14 13:27		
Receive Date:	25-SEP-14		
Collector:	Client		
Moisture:	.833%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	U	2180	2180	6720	ug/kg	1	BYT1	10/01/14	0155	1422929	1
Motor Oil (C20-C36)		12900	2180	6720	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/26/14	1005	1422293
SW846 3541	3541 DRO IN SOIL PREP	SJW1	09/30/14	1018	1422928

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	624 ug/kg	672	92.8	(50%-150%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company :	WC-Hanford, Inc.
Address :	2620 Fermi Avenue MSIN H4-21 Richland, Washington 99354
Contact:	Joan Kessner
Project:	RC-233 Soil

Client SDG: XP0136

Client Sample ID:	J1V0J6	Project:	WCHN00313
Sample ID:	357420012	Client ID:	WCHN001
Matrix:	SOIL		
Collect Date:	22-SEP-14 12:40		
Receive Date:	25-SEP-14		
Collector:	Client		
Moisture:	2.93%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	J	2330	2230	6850	ug/kg	1	BYT1	10/01/14	0234	1422929	1
Motor Oil (C20-C36)		10900	2230	6850	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/26/14	1005	1422293
SW846 3541	3541 DRO IN SOIL PREP	SJW1	09/30/14	1018	1422928

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	625 ug/kg	685	91.4	(50%-150%)

Notes:

Quality Control Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: October 1, 2014

WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H4-21
Richland, Washington

Contact: **Joan Kessner**

Workorder: **357420** **Client SDG:** XP0136 **Project Description:** RC-233 Soil

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Diesel Range Organics											
Batch 1422295											
QC1203175348 LCS											
Diesel Range Organics (C10-C20)	66600				50400	ug/kg		75.6	(70%-130%)	BYT1	09/28/14 11:11
Motor Oil (C20-C36)	66600			B	66500	ug/kg		99.9	(70%-130%)		
**o-Terphenyl	666				600	ug/kg		90.1	(50%-150%)		
QC1203175347 MB											
Diesel Range Organics (C10-C20)				U	2160	ug/kg					09/28/14 15:06
Motor Oil (C20-C36)				J	2610	ug/kg					
**o-Terphenyl	666				396	ug/kg		59.4	(50%-150%)		
QC1203175351 357420002 MS											
Diesel Range Organics (C10-C20)	68100	TU	2210	T	29000	ug/kg		42.6*	(70%-130%)		09/28/14 09:53
Motor Oil (C20-C36)	68100	BJT	3880	BT	32300	ug/kg		41.8*	(70%-130%)		
**o-Terphenyl	681		345		305	ug/kg		44.8*	(50%-150%)		
QC1203175352 357420002 MSD											
Diesel Range Organics (C10-C20)	68100	TU	2210	T	34300	ug/kg	16.8	50.4*	(0%-20%)		09/28/14 10:32
Motor Oil (C20-C36)	68100	BJT	3880	B	53000	ug/kg	48.6*	72.1	(0%-20%)		
**o-Terphenyl	681		345		444	ug/kg		65.2	(50%-150%)		
Batch 1422929											
QC1203176805 LCS											
Diesel Range Organics (C10-C20)	66600				51800	ug/kg		77.8	(70%-130%)	BYT1	09/30/14 22:41
Motor Oil (C20-C36)	66600				62200	ug/kg		93.5	(70%-130%)		
**o-Terphenyl	666				593	ug/kg		89.1	(50%-150%)		
QC1203176804 MB											
Diesel Range Organics (C10-C20)				U	2170	ug/kg					09/30/14 22:02
Motor Oil (C20-C36)				U	2170	ug/kg					

QC Summary

Workorder: 357420 **Client SDG:** XP0136 **Project Description:** RC-233 Soil

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Diesel Range Organics											
Batch 1422929											
**o-Terphenyl	666				559	ug/kg		83.9	(50%-150%)		
QC1203176806 357420007 MS											
Diesel Range Organics (C10-C20)	66900	U	2180		59000	ug/kg		88.2	(70%-130%)	BYT1	10/01/14 00:38
Motor Oil (C20-C36)	66900		16200		78900	ug/kg		93.8	(70%-130%)		
**o-Terphenyl	669		551		687	ug/kg		103	(50%-150%)		
QC1203176807 357420007 MSD											
Diesel Range Organics (C10-C20)	66900	U	2180		54600	ug/kg	7.68	81.6	(0%-20%)		10/01/14 01:17
Motor Oil (C20-C36)	66900		16200		75300	ug/kg	4.70	88.3	(0%-20%)		
**o-Terphenyl	669		551		656	ug/kg		98	(50%-150%)		

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- o Analyte failed to recover within LCS limits (0rganics only)

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

Prep Logbook

Extraction of Semivolatile and Nonvolatile Organic Compounds from Soil, Sludge, and Other Miscellaneous Solid Samples

Batch ID: 1422293 **Verified by:** _____
Analyst: Mia DeLee
Method: SW846 3541

Lab SOP: GL-OA-E-010 REV# 22
Instrument: Semi-Volatiles Manual

Sample ID	Run Date	Aliquot (g)	Prepped Aliquot (mL)	Prepped Factor (mL/g)
1203175347 MB	26-SEP-2014 10:05:00	30.05	1	0.03328
1203175348 LCS	26-SEP-2014 10:05:00	30.04	1	0.03329
357392001	26-SEP-2014 10:05:00	30.01	1	0.03332
357392002	26-SEP-2014 10:05:00	30.07	1	0.03326
357392003	26-SEP-2014 10:05:00	30.06	1	0.03327
357420001	26-SEP-2014 10:05:00	30.11	1	0.03321
357420002	26-SEP-2014 10:05:00	30.11	1	0.03321
1203175351 MS (357420002)	26-SEP-2014 10:05:00	30.11	1	0.03321
1203175352 MSD (357420002)	26-SEP-2014 10:05:00	30.09	1	0.03323
357420003	26-SEP-2014 10:05:00	30.06	1	0.03327
357420004	26-SEP-2014 10:05:00	30.07	1	0.03326
357420005	26-SEP-2014 10:05:00	30.08	1	0.03324
357420006	26-SEP-2014 10:05:00	30.06	1	0.03327
357420007	26-SEP-2014 10:05:00	30.05	1	0.03328
357420008	26-SEP-2014 10:05:00	30.06	1	0.03327
357420009	26-SEP-2014 10:05:00	30.01	1	0.03332
357420010	26-SEP-2014 10:05:00	30.05	1	0.03328
357420011	26-SEP-2014 10:05:00	30.02	1	0.03331
357420012	26-SEP-2014 10:05:00	30.07	1	0.03326

Type	Sample Id	Description	Serial Number	Spike Amt	Units
LCS	1203175348	AZDRO SPIKE LCS STD,4000ug/ml	WFI140918-62	1	mL
MS	1203175351	AZDRO SPIKE LCS STD,4000ug/ml	WFI140918-62	1	mL
MSD	1203175352	AZDRO SPIKE LCS STD,4000ug/ml	WFI140918-62	1	mL
SURR	All	20 ppm surrogate	WE140819-04	1	mL
REGNT	All	Methylene Chloride	2159559-D	120	mL
SOURC	All	SODIUM SULFATE	2148821	30	g

Comments:

Final Solvent: CH2Cl2
Verified by: SG

Sample 357420002 (including the MS/MSD) contained small rocks.

Prep Logbook

Extraction of Semivolatile and Nonvolatile Organic Compounds from Soil, Sludge, and Other Miscellaneous Solid Samples

Batch ID: 1422928 **Verified by:** _____
Analyst: Sirena White
Method: SW846 3541

Lab SOP: GL-OA-E-010 REV# 22
Instrument: Semi-Volatiles Manual

Sample ID	Run Date	Aliquot (g)	Prepped Aliquot (mL)	Prepped Factor (mL/g)
1203176804 MB	30-SEP-2014 10:18:00	30.01	1	0.03332
1203176805 LCS	30-SEP-2014 10:18:00	30.05	1	0.03328
357420001 - 2	30-SEP-2014 10:18:00	30.06	1	0.03327
357420007 - 2	30-SEP-2014 10:18:00	30.02	1	0.03331
1203176806 - 2 MS (357420007)	30-SEP-2014 10:18:00	30.15	1	0.03317
1203176807 - 2 MSD (357420007)	30-SEP-2014 10:18:00	30.12	1	0.0332
357420011 - 2	30-SEP-2014 10:18:00	30.01	1	0.03332
357420012 - 2	30-SEP-2014 10:18:00	30.09	1	0.03323

Type	Sample Id	Description	Serial Number	Spike Amt	Units
LCS	1203176805	AZDRO SPIKE LCS STD,4000ug/ml	WFI140918-63	1	mL
MS	1203176806	AZDRO SPIKE LCS STD,4000ug/ml	WFI140918-63	1	mL
MSD	1203176807	AZDRO SPIKE LCS STD,4000ug/ml	WFI140918-63	1	mL
SURR	All	20 ppm surrogate	WE140819-04	1	mL
REGNT	All	Methylene Chloride	2159559-D	120	mL
SOURC	All	SODIUM SULFATE	2148821	30	g

Comments:

Final Solvent: CH2Cl2
Verified by: SG

PCB Analysis

Case Narrative

PCB Case Narrative
WC-HANFORD, INC. (WCHN)
SDG XP0136

Method/Analysis Information

Procedure:	**Analysis of Polychlorinated Biphenyls by ECD**
Analytical Method:	SW846 3541/8082A
Prep Method:	SW846 3541
Analytical Batch Number:	1422045
Prep Batch Number:	1422043

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3541/8082A:

Sample ID	Client ID
357420001	J1V0H5
357420002	J1V0H6
357420003	J1V0H7
357420004	J1V0H8
357420005	J1V0H9
357420006	J1V0J0
357420007	J1V0J1
357420008	J1V0J2
357420009	J1V0J3
357420010	J1V0J4
357420011	J1V0J5
357420012	J1V0J6
1203174727	MB for batch 1422043
1203174728	Laboratory Control Sample (LCS)
1203174729	357420001(J1V0H5) Matrix Spike (MS)
1203174730	357420001(J1V0H5) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-040 REV# 20.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standards (ICV or CCV) met the acceptance criteria. All analytes were within the established retention time windows for this method.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for the samples in this SDG in this batch.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 357420001 (J1V0H5) was selected for the matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS recoveries for this SDG were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries for this SDG were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the MS and MSD met the acceptance limits.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns. All sample extracts were cleaned using alumina. Additionally, copper was added to all sample extracts to remove sulfur.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this batch.

Miscellaneous Information

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

Data exception report (DER) is generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A DER was not required for the samples in this SDG in this batch.

Manual Integrations

Certain standards and samples may have required manual integration to correctly position the baseline as set in the calibration standard injections. If manual integration was performed, copies of all manual integration peak profiles are included in the raw data section of this PCB fraction.

Additional Comments

The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

The higher results from either column have been chosen and reported in the data package for the client samples, MB and LCS. The data reported for the MS and MSD are from the same analytical column as the parent sample.

Due to software issue, the surrogate recovery range was not indicated or possibly indicated incorrectly in Quantitation Report. Please see Surrogate Recovery Report for correct surrogate acceptance limits.

Due to rounding differences in the calculation between the forms, the data reported in Sample Summary (form 1) and Spike Recovery Report (form 3) may differ slightly from the data reported in Identification Summary (form 10).

Aroclors quantitated on the raw data report by ChemStation data system do not necessarily represent positive Aroclor identification. In order for positive identification to be made, the Aroclor must match in pattern and retention time; as well as quantitate relatively close between the primary and confirmation columns, as specified in SW846 method 8000. When these conditions are not met, the Aroclor is reported as a non-detect on the data report.

System Configuration

The Semi-Volatiles-PCB analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
ECD8A.I_1	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP I	30m x 0.25mm, 0.25um (Rtx-CLPesticide I)

ECD8A.I_2	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP II	30m x 0.25mm, 0.20um (Rtx-CLPesticide II)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

WCHN001 WC-HANFORD, INC.

Client SDG: XP0136 GEL Work Order: 357420 Project: RC-233 Soil

The Qualifiers in this report are defined as follows:

J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

DL Indicates that sample is diluted.

RA Indicates that sample is re-analyzed without re-extraction.

RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jimin Cao **Name: Jimin Cao**

Date: 30 SEP 2014 **Title: Data Validator**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 2, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0H5
Sample ID: 357420001
Matrix: SOIL
Collect Date: 22-SEP-14 12:16
Receive Date: 25-SEP-14
Collector: Client
Moisture: 4.96%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.17	1.17	3.51	ug/kg	1	JXM	09/26/14	0852	1422045	1
Aroclor-1221	U	1.17	1.17	3.51	ug/kg	1					
Aroclor-1232	U	1.17	1.17	3.51	ug/kg	1					
Aroclor-1242	U	1.17	1.17	3.51	ug/kg	1					
Aroclor-1248	U	1.17	1.17	3.51	ug/kg	1					
Aroclor-1254	J	1.78	1.17	3.51	ug/kg	1					
Aroclor-1260	U	1.17	1.17	3.51	ug/kg	1					
Aroclor-1262	U	1.17	1.17	3.51	ug/kg	1					
Aroclor-1268	U	1.17	1.17	3.51	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	09/25/14	1714	1422043

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.57 ug/kg	7.01	65.2	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.66 ug/kg	7.01	66.4	(25%-131%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 2, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0H6
Sample ID: 357420002
Matrix: SOIL
Collect Date: 22-SEP-14 12:21
Receive Date: 25-SEP-14
Collector: Client
Moisture: 2.47%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.14	1.14	3.41	ug/kg	1	JXM	09/26/14	0935	1422045	1
Aroclor-1221	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1232	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1242	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1248	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1254	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1260	J	2.79	1.14	3.41	ug/kg	1					
Aroclor-1262	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1268	U	1.14	1.14	3.41	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	09/25/14	1714	1422043

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.37 ug/kg	6.82	64.1	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.71 ug/kg	6.82	69.1	(25%-131%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 2, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0H7
Sample ID: 357420003
Matrix: SOIL
Collect Date: 22-SEP-14 12:26
Receive Date: 25-SEP-14
Collector: Client
Moisture: .989%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.12	1.12	3.37	ug/kg	1	JXM	09/26/14	0949	1422045	1
Aroclor-1221	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1232	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1242	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1248	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1254	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1260	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1262	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1268	U	1.12	1.12	3.37	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	09/25/14	1714	1422043

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.25 ug/kg	6.73	63.1	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.21 ug/kg	6.73	62.6	(25%-131%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 2, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0H8
Sample ID: 357420004
Matrix: SOIL
Collect Date: 22-SEP-14 12:31
Receive Date: 25-SEP-14
Collector: Client
Moisture: 1.04%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.12	1.12	3.36	ug/kg	1	JXM	09/26/14	1003	1422045	1
Aroclor-1221	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1232	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1242	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1248	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1254	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1260	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1262	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1268	U	1.12	1.12	3.36	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	09/25/14	1714	1422043

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.43 ug/kg	6.73	65.9	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.87 ug/kg	6.73	57.5	(25%-131%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 2, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0H9
Sample ID: 357420005
Matrix: SOIL
Collect Date: 22-SEP-14 12:37
Receive Date: 25-SEP-14
Collector: Client
Moisture: 1.12%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.12	1.12	3.37	ug/kg	1	JXM	09/26/14	1018	1422045	1
Aroclor-1221	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1232	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1242	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1248	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1254	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1260	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1262	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1268	U	1.12	1.12	3.37	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	09/25/14	1714	1422043

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.75 ug/kg	6.74	55.7	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.23 ug/kg	6.74	48.0	(25%-131%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 2, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0J0
Sample ID: 357420006
Matrix: SOIL
Collect Date: 22-SEP-14 12:46
Receive Date: 25-SEP-14
Collector: Client
Moisture: .947%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.12	1.12	3.36	ug/kg	1	JXM	09/26/14	1032	1422045	1
Aroclor-1221	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1232	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1242	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1248	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1254	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1260	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1262	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1268	U	1.12	1.12	3.36	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	09/25/14	1714	1422043

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.78 ug/kg	6.71	56.3	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.65 ug/kg	6.71	54.4	(25%-131%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 2, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0J1
Sample ID: 357420007
Matrix: SOIL
Collect Date: 22-SEP-14 13:04
Receive Date: 25-SEP-14
Collector: Client
Moisture: .797%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.12	1.12	3.35	ug/kg	1	JXM	09/26/14	1046	1422045	1
Aroclor-1221	U	1.12	1.12	3.35	ug/kg	1					
Aroclor-1232	U	1.12	1.12	3.35	ug/kg	1					
Aroclor-1242	U	1.12	1.12	3.35	ug/kg	1					
Aroclor-1248	U	1.12	1.12	3.35	ug/kg	1					
Aroclor-1254	U	1.12	1.12	3.35	ug/kg	1					
Aroclor-1262	U	1.12	1.12	3.35	ug/kg	1					
Aroclor-1268	U	1.12	1.12	3.35	ug/kg	1					
Aroclor-1260	J	2.49	1.12	3.35	ug/kg	1	JXM	09/26/14	1046	1422045	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	09/25/14	1714	1422043

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.64 ug/kg	6.71	54.2	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.76 ug/kg	6.71	56.0	(25%-131%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 2, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0J2
Sample ID: 357420008
Matrix: SOIL
Collect Date: 22-SEP-14 13:09
Receive Date: 25-SEP-14
Collector: Client
Moisture: .797%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.12	1.12	3.36	ug/kg	1	JXM	09/26/14	1101	1422045	1
Aroclor-1221	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1232	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1242	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1248	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1254	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1262	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1268	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1260		6.63	1.12	3.36	ug/kg	1	JXM	09/26/14	1101	1422045	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	09/25/14	1714	1422043

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.55 ug/kg	6.71	52.9	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.14 ug/kg	6.71	61.7	(25%-131%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 2, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0J3
Sample ID: 357420009
Matrix: SOIL
Collect Date: 22-SEP-14 13:16
Receive Date: 25-SEP-14
Collector: Client
Moisture: .816%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.12	1.12	3.36	ug/kg	1	JXM	09/26/14	1140	1422045	1
Aroclor-1221	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1232	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1242	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1248	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1254	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1262	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1268	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1260		3.53	1.12	3.36	ug/kg	1	JXM	09/26/14	1140	1422045	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	09/25/14	1714	1422043

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.89 ug/kg	6.72	58.0	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.05 ug/kg	6.72	60.4	(25%-131%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 2, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0J4
Sample ID: 357420010
Matrix: SOIL
Collect Date: 22-SEP-14 13:22
Receive Date: 25-SEP-14
Collector: Client
Moisture: .802%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.12	1.12	3.36	ug/kg	1	JXM	09/26/14	1154	1422045	1
Aroclor-1221	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1232	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1242	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1248	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1254	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1262	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1268	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1260	J	2.66	1.12	3.36	ug/kg	1	JXM	09/26/14	1154	1422045	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	09/25/14	1714	1422043

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.52 ug/kg	6.72	67.3	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.84 ug/kg	6.72	72.1	(25%-131%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 2, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0J5
Sample ID: 357420011
Matrix: SOIL
Collect Date: 22-SEP-14 13:27
Receive Date: 25-SEP-14
Collector: Client
Moisture: .833%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.12	1.12	3.36	ug/kg	1	JXM	09/26/14	1208	1422045	1
Aroclor-1221	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1232	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1242	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1248	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1254	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1260	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1262	U	1.12	1.12	3.36	ug/kg	1					
Aroclor-1268	U	1.12	1.12	3.36	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	09/25/14	1714	1422043

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.37 ug/kg	6.72	64.9	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.64 ug/kg	6.72	69.0	(25%-131%)

Notes:

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 2, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-233 Soil

Client SDG: XP0136

Client Sample ID: J1V0J6
Sample ID: 357420012
Matrix: SOIL
Collect Date: 22-SEP-14 12:40
Receive Date: 25-SEP-14
Collector: Client
Moisture: 2.93%

Project: WCHN00313
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.14	1.14	3.43	ug/kg	1	JXM	09/26/14	1223	1422045	1
Aroclor-1221	U	1.14	1.14	3.43	ug/kg	1					
Aroclor-1232	U	1.14	1.14	3.43	ug/kg	1					
Aroclor-1242	U	1.14	1.14	3.43	ug/kg	1					
Aroclor-1248	U	1.14	1.14	3.43	ug/kg	1					
Aroclor-1254	U	1.14	1.14	3.43	ug/kg	1					
Aroclor-1262	U	1.14	1.14	3.43	ug/kg	1					
Aroclor-1268	U	1.14	1.14	3.43	ug/kg	1					
Aroclor-1260		3.98	1.14	3.43	ug/kg	1	JXM	09/26/14	1223	1422045	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	09/25/14	1714	1422043

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	2.17 ug/kg	6.86	31.6	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.87 ug/kg	6.86	56.3	(25%-131%)

Notes:

Quality Control Summary

QC Summary

Report Date: October 2, 2014

WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H4-21
Richland, Washington

Contact: **Joan Kessner**

Workorder: **357420** **Client SDG:** XP0136 **Project Description:** RC-233 Soil

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-PCB										
Batch 1422045										
QC1203174728 LCS										
Aroclor-1016	33.3			22.9	ug/kg		68.8	(44%-97%)	JXM	09/26/14 07:32
Aroclor-1260	33.3			21.6	ug/kg		64.8	(49%-109%)		
**4cmx	6.66			4.69	ug/kg		70.4	(29%-106%)		
**Decachlorobiphenyl	6.66			5.45	ug/kg		81.8	(25%-131%)		
QC1203174727 MB										
Aroclor-1016			U	1.11	ug/kg					09/26/14 07:19
Aroclor-1221			U	1.11	ug/kg					
Aroclor-1232			U	1.11	ug/kg					
Aroclor-1242			U	1.11	ug/kg					
Aroclor-1248			U	1.11	ug/kg					
Aroclor-1254			U	1.11	ug/kg					
Aroclor-1260			U	1.11	ug/kg					
Aroclor-1262			U	1.11	ug/kg					
Aroclor-1268			U	1.11	ug/kg					
**4cmx	6.65			5.27	ug/kg		79.2	(29%-106%)		
**Decachlorobiphenyl	6.65			5.90	ug/kg		88.6	(25%-131%)		
QC1203174729 357420001 MS										
Aroclor-1016	35.0	U	1.17	19.6	ug/kg		55.9	(22%-127%)		09/26/14 09:06
Aroclor-1260	35.0	U	1.17	21.0	ug/kg		60	(18%-130%)		
**4cmx	7.01		4.57	4.53	ug/kg		64.6	(29%-106%)		
**Decachlorobiphenyl	7.01		4.66	5.00	ug/kg		71.3	(25%-131%)		

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 357420 **Client SDG:** XP0136 **Project Description:** RC-233 Soil

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-PCB												
Batch 1422045												
QC1203174730 357420001 MSD												
Aroclor-1016	35.0	U	1.17		16.7	ug/kg	16.2	47.6	(0%-30%)	JXM	09/26/14	09:20
Aroclor-1260	35.0	U	1.17		18.2	ug/kg	14.6	51.8	(0%-30%)			
**4cmx	7.01		4.57		4.33	ug/kg		61.8	(29%-106%)			
**Decachlorobiphenyl	7.01		4.66		4.44	ug/kg		63.3	(25%-131%)			

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- o Analyte failed to recover within LCS limits (0rganics only)

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

Prep Logbook

Automated Soxhlet Extraction

Batch ID: 1422043 **Verified by:** _____
Analyst: Shannon Whitehead
Method: SW846 3541

Lab SOP: GL-OA-E-066 REV# 5
Instrument: Semi-Volatiles Manual

Sample ID	Run Date	Aliquot (g)	Clean Up 1	Clean Up Amount 1 (mL)	Post Clean Up Amount 1 (mL)	Final Volume (mL)	Prepped Factor (mL/g)
1203174727 MB	25-SEP-2014 17:14:00	30.07	H2SO4/KMnO4	2	9	1	0.03326
1203174728 LCS	25-SEP-2014 17:14:00	30.04	H2SO4/KMnO4	2	9	1	0.03329
357392001	25-SEP-2014 17:14:00	30.01	H2SO4/KMnO4	2	9	1	0.03332
357392002	25-SEP-2014 17:14:00	30.06	H2SO4/KMnO4	2	9	1	0.03327
357392003	25-SEP-2014 17:14:00	30.05	H2SO4/KMnO4	2	9	1	0.03328
357420001	25-SEP-2014 17:14:00	30.01	H2SO4/KMnO4	2	9	1	0.03332
1203174729 MS (357420001)	25-SEP-2014 17:14:00	30.03	H2SO4/KMnO4	2	9	1	0.0333
1203174730 MSD (357420001)	25-SEP-2014 17:14:00	30.04	H2SO4/KMnO4	2	9	1	0.03329
357420002	25-SEP-2014 17:14:00	30.05	H2SO4/KMnO4	2	9	1	0.03328
357420003	25-SEP-2014 17:14:00	30	H2SO4/KMnO4	2	9	1	0.03333
357420004	25-SEP-2014 17:14:00	30.03	H2SO4/KMnO4	2	9	1	0.0333
357420005	25-SEP-2014 17:14:00	30	H2SO4/KMnO4	2	9	1	0.03333
357420006	25-SEP-2014 17:14:00	30.07	H2SO4/KMnO4	2	9	1	0.03326
357420007	25-SEP-2014 17:14:00	30.06	H2SO4/KMnO4	2	9	1	0.03327
357420008	25-SEP-2014 17:14:00	30.03	H2SO4/KMnO4	2	9	1	0.0333
357420009	25-SEP-2014 17:14:00	30.02	H2SO4/KMnO4	2	9	1	0.03331
357420010	25-SEP-2014 17:14:00	30	H2SO4/KMnO4	2	9	1	0.03333
357420011	25-SEP-2014 17:14:00	30	H2SO4/KMnO4	2	9	1	0.03333
357420012	25-SEP-2014 17:14:00	30.02	H2SO4/KMnO4	2	9	1	0.03331

Type	Sample Id	Description	Serial Number	Spike Amt	Units
LCS	1203174728	PCB Laboratory Control	WE140908-06	1	mL
MS	1203174729	PCB Laboratory Control	WE140908-06	1	mL
MSD	1203174730	PCB Laboratory Control	WE140908-06	1	mL
SURR	All	PEST LOW LEVEL SURROGATE 200 UG/L	WE140922-01	1	mL

Comments:

Final Solvent: Hexane
Verified By: AV
Clean up Initials: SLW
Clean up SOP: GL-OA-E-037
Clean up Date: 09-25-14

Prep Logbook

Batch ID: 1422043 **Verified by:** _____
Analyst: Shannon Whitehead
Method: SW846 3541

Lab SOP: GL-OA-E-066 REV# 5
Instrument: Semi-Volatiles Manual

Sample ID		Run Date	Aliquot (g)	Clean Up 1	Clean Up Amount 1 (mL)	Post Clean Up Amount 1 (mL)	Final Volume (mL)	Prepped Factor (mL/g)
REGNT	All	1:1 sulfuric acid		2144769		5	mL	
REGNT	All	Hexane		2151967-B10		120	mL	
REGNT	All	5% Potassium Permanganate		2159385		5	mL	
SOURC	All	SODIUM SULFATE		2148821		30	g	